Pickerel Lake, South Dakota
Summer and Winter Angler Use and Harvest Surveys
December 2006 - March 2011

by

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Preface

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Executive Summary

- Pickerel Lake experienced moderate to heavy angling pressure during the summer (May-August) and winter (December-March) periods between December 2006 and March 2011. Nonresident anglers comprised a moderate proportion of total anglers surveyed and most summer anglers were fishing from boats. Walleye and Black Crappie were the most targeted species during the summer and Black Crappie, Yellow Perch and Walleye were most frequently targeted during the winter.

- During the summer, angler catch consisted primarily of Black Crappie, Smallmouth Bass and Walleye. Summer angler harvest was dominated by Black Crappie and Walleye. Bluegill, Northern Pike and Yellow Perch were periodic components of summer angler catch and harvest. Winter angler catch and harvest was dominated by Black Crappie and Yellow Perch. Bluegill and Walleye were periodic components of winter angler catch and harvest.

- Summer angler satisfaction was variable. The reason for variable angler satisfaction is unclear as the lowest angler satisfaction occurred during the summer of 2009 which had increased catch and harvest rates for Black Crappie and similar catch and harvest rates for Walleye when compared to 2008. Winter angler satisfaction is most likely tied to snow amounts limiting lake access. The lowest winter satisfaction occurred during the 2010-2011 winter which had deep snow, but the highest catch and harvest rates observed for Black Crappie.

- Summer anglers indicated a diversity of factors that are important to consider a fishing trip successful. 'Relaxation' was the most commonly cited response during the summer of 2010. However, 'catching fish' was the most cited response in 2007 and 2008. 'Harvesting fish', 'participating, 'being with friends' and 'other' were infrequently cited by anglers. Winter anglers indicated 'catching fish' and 'participating' most frequently.

- Both summer and winter anglers indicated strong support for the special panfish regulation in place in northeast South Dakota. Few anglers were opposed to the regulation.

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The fishery in Pickerel Lake has a long history and is moderately to highly popular with anglers. Pickerel Lake is one of the few lakes in northeast South Dakota that has provided angling opportunities during prolonged droughts. Fish stocking events date back to 1914 and most recently Walleye have been stocked biennially. Most species currently present in the lake are self-sustaining. Historically, Walleye have been the primary species sought by anglers. However, recent increases in Black Crappie abundance have shifted angler preference.

The Walleye minimum length regulation was changed in 2010 from 356-mm (14 inches) to 381-mm (15-inch) to comply with the Walleye Toolbox options (Lucchesi and Blackwell 2009). A protected slot limit was established in 2005 for black bass (Smallmouth Bass and Largemouth Bass) from 305 to 457 mm (12-18 inches) with a three fish limit, only one of which may be over 457 mm (18 inches). The regulation was changed in 2009 to conform to the Black Bass Toolbox options (Blackwell and Lucchesi 2009) which allows the harvest of five bass with none between 356 to 457 mm (14-18 inches) and only one may be over 457 mm (18 inches). In 2011 the panfish limit changed from 10 to 15 fish daily.

Pickerel Lake was last surveyed for angler use and harvest information during the summers of 1997, 1998, 1999 and 2006. Information concerning angler use and harvest is important in the ongoing fisheries management of Pickerel Lake. This report summarizes summer and winter angler use and harvest surveys that were completed from December 2006 through March 2011.

Study Site

Pickerel Lake is a meandered lake of moderate size (approximately 377 hectares; 931 acres) located in Day County approximately 20 kilometers (12.4 miles) north of the town of Waubay. The maximum depth of the lake basin is 13.1 meters (43 feet). Much of the land around the lake is private and the shoreline is highly developed. Pickerel Lake State Park is present on the west and east shore. Due to the large amount private property along the lake shore, public access is limited to the boat ramps and fishing pier in the state park, a public boat ramp located along the southeast shoreline of the lake and a road access located on the northwest shore.

Methods

A roving angler use and harvest survey with two-stage stratification was completed during the summers (May – August) of 2007, 2008, 2009, 2010 and the winters (December – March) of 2006-2007, 2007-2008, 2008-2009, 2009-2010 and 2010-2011. The first stratification unit was between weekdays and weekend days. The second stratification unit was for the time periods that the clerk was present. Because weekends typically receive increased fishing pressure most weekend days are represented in the survey. Time periods were randomly assigned to available days with weekdays and weekend/holiday days being treated separately when time periods were assigned.

The survey utilized instantaneous angler counts combined with angler interviews. Instantaneous angler counts provided fishing pressure estimates and angler interviews provided information necessary for estimating fish species catch rates, mean angler trip length, and mean party size. Two instantaneous counts of the total number of boats/shacks and all shoreline/open anglers present were made each surveyed day. When counts were not being made, anglers were contacted and interviewed. Angler use and harvest estimates were calculated using Creel Application Software (CAS; Soupir and Brown 2002).

Additional questions asked during interviews were used to obtain angler primary residence, fish species targeted, and angler opinions. Total length (TL; mm) measurements from angler caught fish were recorded during the interview process.

The potential economic value of the Pickerel Lake fishery was estimated by multiplying a daily expenditure of $50 (U.S. Department of Interior, Fish and Wildlife Service, U.S. Department of Commerce, Bureau of Census 2011) by the estimated number of angler days.

Results and Discussion

Fishing Pressure

The proportion of anglers indicating no preference for a target species during the summer ranged from 12% (2010) to 48% (2008; Table 1). Of those anglers that indicated a preference, Walleye was the primary target species. The proportion of anglers targeting Walleye ranged from a low of 9% (2008) to a high of 54% (2010; Table 1). Black Crappie were moderately popular during the summer with the proportion of anglers targeting them ranging from 16% (2007 and 2008) to 29% (2010; Table 1). Bluegill, Northern Pike, Smallmouth Bass and Yellow Perch were targeted by few anglers during the summer (Table 1).

A moderate proportion of anglers interviewed during the winter indicated no preference for target species; the percent of anglers indicating no preference ranged from 12% (2009-2010) to 48% (2007-2008; Table 2). Of those anglers that indicated a preference, Black Crappie and Yellow Perch were their primary target species. Yellow Perch were targeted during the winters of 2006-2007 and 2007-2008 with proportions of 22% and 25%, respectively (Table 2). Black Crappie abundance increased in 2007 and 2008 (Kaufman et al. 2009). This increase resulted in anglers targeted them more frequently with proportions ranging from 16% (2007-2008) to 83% (2009-2010; Table 2). Bluegill, Northern Pike and Walleye were targeted by few anglers during the winter (Table 2).

Summer angling pressure ranged from 24,285 (2008) to 40,148 angler hours (2009; Table 3) for each summer period. Mean party size ranged from 2.14 (2008) to 2.60 (2009; Table 3) anglers. The overall mean trip length ranged from 2.78 (2008) to 4.11 hours (2009; Table 3). Low angler hours, party size and trip length in 2008 are related to low catch rates for Walleye and Black Crappie. Increases observed in angler hours, party size and trip length in 2009 and 2010 are related to increased Black Crappie catch rates. Most angler hours are attributed to anglers fishing from boats with proportions ranging from 81% (2007) to 93% (2010; Table 3) for all surveyed summers. The low proportion of shore anglers is likely due to the lack of public access to most of the lake shore and difficulty quantifying shore fishing from private property.

Winter angling pressure varied substantially ranging from 6,673 (2010-2011) to 23,339 angler hours (2009-2010; Table 4) for each winter period. Overall mean party size ranged from 1.75 (2007-2008) to 2.40 (2009-2010; Table 4) anglers and mean trip length ranged from 3.64 (2008-2009) to 3.94 hours (2006-2007; Table 4). Winter angler access to Pickerel Lake is usually good but with deep snow angler use decreases. This corresponds to the decreased pressure observed in 2010-2011 despite high Black Crappie catch rates. Angler hours attributed to anglers fishing from ice shacks ranged from 60% (2009-2010) to 85% (2008-2009; Table 4) and likely varied with winter weather conditions.

Angler Demographics

South Dakota residents comprised a moderate proportion of the anglers utilizing Pickerel Lake during the summer with overall percentages ranging from 63% (2010) to 66% (2009; Table 5). Most nonresident anglers utilizing Pickerel Lake during the summer were from Iowa, Minnesota and Nebraska. Home residence of winter anglers was skewed more towards South Dakota residents with overall proportion ranging from 58% (2006-2007) to 91% (2010-2011; Table 4). Most nonresident anglers fishing Pickerel Lake during the winter were from Iowa, Minnesota and Nebraska.

Angler Catch and Harvest

Black Crappie

Summer anglers had poor to fair success catching Black Crappie. Overall catch rates ranged from 0.12 (2007 and 2008) to 0.44 Black Crappie per hour (2010; Table 7). The estimated number of Black Crappie caught each summer ranged from 2,939 (2008) to 12,270 (2010; Table 9). Overall harvest rates were moderate to high ranging from 0.02 (2007) to 0.37 Black Crappie per hour (2010; Table 7). The estimated number of Black Crappie harvested during the summers ranged from 638 (2007) to 10,309 (2010; Table 9). Length frequency analysis of Black Crappie harvested during the summer indicated that harvest was primarily comprised of two year-classes. A moderate strength year class of larger fish was represented in 2007 (24 to 30 cm TL; Figure 1). However, that year class comprised less of the catch during subsequent summers due to natural and angling mortality. An additional year class dominated the harvest from 2008 to 2010. As this year class entered the angler harvest, the mean total length decreased from 277 mm (10.9 inches, 2007) to 244 mm (9.6 inches, 2008; Figure 1).

Winter anglers had fair to excellent success catching Black Crappie. Overall catch rates ranged from 0.47 (2006-2007) to 3.78 Black Crappie per hour (2010-2011; Table 8). The estimated number of Black Crappie caught each winter ranged from 5,595 (2006-2007) to 47,918 (2009-2010; Table 10). Harvest rates were generally high, ranging from 0.36 (2007-2008) to 3.55 Black Crappie per hour (2010-2011; Table 8). The estimated number of Black Crappie harvested ranged from 4,439 (2007-2008) and 39,082 (2009-2010; Table 10). Length frequency analysis of Black Crappie harvested during the winter indicated the same trend as observed in the summer with two year-classes primarily comprising the harvest. The mean total length of harvested Black Crappie decreased from 291 mm (11.5 in, 2006-2007) to 215 mm (8.5 in, 2007-2008; Figure 2) as a result of the second year class recruiting to the angler creel.

Bluegill

Summer anglers had poor to fair success at catching Bluegill. Overall summer catch rates ranged from <0.01 (2008) to 0.10 per hour (2007; Table 7). The estimated number of Bluegill caught each summer ranged from 94 (2008) to 2,935 (2007; Table 9). The estimated number of Bluegill harvested ranged from 23 (2008) to 1,684 (2007; Table 9). Bluegill harvest during the summer periods was infrequent precluding length frequency analysis.

Winter anglers also had poor to fair success catching Bluegill. Overall winter catch rates ranged from 0.04 (2009-2010) to 0.19 per hour (2006-2007; Table 8). The estimated number of Bluegill caught each winter ranged from 686 (2010-2011) to 2,332 (2006-2007; Table 10). The estimated number of Bluegill harvested ranged from 419 (2010-2011) to 1,605 (2008-2009; Table 10). Length frequency analysis of harvested Bluegill indicated the harvest was dominated by one strong year class. Mean total length of harvested Bluegill increased from 185 mm (7.3 in, 2006-2007) to 226 mm (8.9 in, 2010-2011; Figure 3) as fish in this year class grew.

Northern Pike

Summer anglers had poor to fair success catching Northern Pike. Overall summer catch rates ranged from 0.04 (2009) to 0.11 fish per hour (2008; Table 7). The estimated number of Northern Pike caught ranged from 1,479 (2010) to 3,057 (2007; Table 9). Harvest rates were low with overall rates ranging from 0.01 (2008, 2009, 2010) to 0.03 per hour (2007; Table 7). The estimated number of Northern Pike harvested ranged from 182 (2010) to 793 (2007; Table 9). Low numbers of Northern Pike harvested each summer preclude length frequency analysis.

Winter anglers also had poor success catching Northern Pike. Overall catch rates ranged from <0.01 (2009-2010) to 0.03 per hour (2006-2007; Table 8). The estimated number of Northern Pike caught during each winter ranged from 42 (2010-2011) to 364 (2008-2009; Table 10). Harvest of Northern Pike was low with the estimated number ranging from 0 (2009-2010) to 175 (2007-2008; Table 10). Low numbers of Northern Pike harvested during the winter periods preclude length frequency analysis.

Smallmouth Bass

Summer anglers had poor to excellent success catching Smallmouth Bass. Overall summer catch rates ranged from 0.07 (2010) to 1.11 fish per hour (2007; Table 7). The estimated number of Smallmouth Bass caught ranged from 2,041 (2010) to 35,293 (2007; Table 9). Harvest of Smallmouth Bass was low with the estimated number of Smallmouth Bass harvested each summer ranging from 103 (2009) to 1,018 (2007; Table 9). Smallmouth Bass harvest during summer periods was infrequent precluding length frequency analysis. Few Smallmouth Bass were caught by anglers during the winter survey.

Walleye

Summer anglers had fair success at catching Walleye. Overall summer catch rates ranged from 0.23 (2010) to 0.28 (2008; Table 7). The estimated number of Walleye caught each summer ranged from 6,201 (2010) to 9,675 (2009; Table 9). Harvest rates during the summer were low ranging from 0.02 (2010) to 0.11 (2007; Table 7). The estimated number of Walleye harvested ranged from 455 (2010) to 3,422 (2007; Table 9). Low numbers of harvested Walleye were measured precluding length frequency analysis.

Winter anglers had poor to fair success catching Walleye. Overall catch rates ranged from 0.01 (2010-2011) to 0.13 fish per hour (2007-2008; Table 8). The estimated total catch of Walleye during the winter ranged from 67 (2010-2011) to 1,634 (2007-2008; Table 10). The estimated number of Walleye harvested ranged from 17 (2010-2011) to 531 (2006-2007; Table 10). Low numbers of Walleye harvested during the winter preclude length frequency analysis.

Yellow Perch

Summer anglers had poor to fair success catching Yellow Perch. Overall summer catch rates ranged from <0.01 (2010) to 0.27 fish per hour (2007; Table 7). The estimated number of Yellow Perch caught ranged from 79 (2010) to 8,503 (2007; Table 9). The estimated number of Yellow Perch harvested during the summer ranged from 59 (2009) to 1,007 (2007; Table 9). Yellow Perch harvest during the summer was infrequent precluding length frequency analysis.

Winter anglers had fair to good success catching Yellow Perch. Overall catch rates ranged from 0.29 (2010-2011) to 0.83 fish per hour (2007-2008; Table 8). The estimated number of Yellow Perch caught ranged from 1,945 (2010-2011) to 10,407 (2007-2008; Table 10). Winter harvest rates ranged from 0.05 (2010-2011) to 0.43 fish per hour (2007-2008; Table 8). The estimated number of Yellow Perch harvested ranged from 338 (2010-2011) to 8,412 (2009-2010; Table 10). Length frequency analysis indicated multiple year-classes present in the angler harvest during 2006-2007. However, the harvest was dominated by Yellow Perch between 18 and 23 cm (7.1 and 9.1 in) total length from 2007-2008 to 2009-2010 with only a slight increase observed in mean total length (214 mm [8.4 inches] in 2007-2008 to 219 mm [8.6 inches] in 2009-2010; Figure 4) between winters.

Other species

Other species caught in low numbers during the summer and winter angler surveys include: Black Bullhead, Common Carp, Largemouth Bass, Rock Bass, White Bass and White Sucker.

Angler Opinions

Angler Satisfaction

During the summers of 2007-2010 and the winters of 2006-2007, 2009-2010 and 2010-2011 anglers were asked to quantify angling satisfaction considering all factors. The question was changed after the summer of 2008 to include moderately satisfied and moderately dissatisfied. Overall summer angler satisfaction ranged from 58% (2009) to 73% (2010; Table 11) of interviewed anglers. Angler dissatisfaction ranged from 10% (2010) to 15% (2007; Table 11).

Overall winter angler satisfaction ranged from 56% (2010-2011) to 81% (2009-2010; Table 12) of interviewed anglers. Angler dissatisfaction ranged from 10% (2009-2010) to 30% (2010-2011; Table 12) of interviewed anglers. High angler satisfaction during the winter of 2009-2010 correlates with increased size and catch rate for Black Crappie compared to the previous year. However, decreased angler satisfaction during the winter of 2010-2011 corresponds to increased size and catch rate for Black Crappie than was observed in 2009-2010. This decrease in angler satisfaction likely can be attributed to deep snow which made lake access difficult.

Angling Trip Success

During the summers of 2007, 2008 and 2010 and the winters of 2006-2007 and 2010-2011 anglers were asked what the most important factor was to consider a fishing trip successful. Summer anglers most frequently indicated that 'catching fish' (ranging from 29% in 2010 to 52% in 2008) was the most important factor followed by 'relaxation' (ranging from 13% in 2008 to 46% in 2008; Table 13). 'Harvesting fish', 'participating' and 'being with friends' were cited infrequently.

Winter anglers cited 'catching fish' (38% in 2006-2007 and 47% in 2010-2011) and 'participating' (with 31% in 2006-2007 and 26% in 2010-2011; Table 14) as the most important factors. 'Relaxation' and 'harvesting fish' were moderately cited. 'Being with friends' and 'other' were rarely cited by winter anglers.

Northeast South Dakota Panfish Regulation

During the summer of 2009 and winter of 2009-2010 anglers were asked whether they were in favor of or oppose the special panfish regulation in northeast South Dakota. Most anglers (69% in 2009 and 87% in 2009-2010; Table 15) indicated they were in favor of the special regulation. Few anglers (4% in 2009 and 9% in 2009-2010; Table 15) indicated they were opposed to the regulation.

Table 1. Angler primary target species (percentage) by month and overall for anglers fishing Pickerel Lake, South Dakota during the summers of 2007-2010. ANY=anything, BLC=Black Crappie, BLG=Bluegill, NOP= Northern Pike, SMB=Smallmouth Bass, WAE=Walleye, YEP=Yellow Perch.

		Percent (%) of Anglers						
Year	Month	ANY	BLC	BLG	NOP	SMB	WAE	YEP
2007	May	0.0	50.0	0.0	0.0	5.0	45.0	0.0
	June	20.6	8.8	2.9	2.9	5.9	50.0	2.9
	July	31.0	0.0	0.0	0.0	10.3	58.6	0.0
	August	38.5	15.4	7.7	0.0	7.7	30.8	0.0
	Overall	21.9	15.6	2.1	1.0	7.3	49.0	1.0
2008	May	28.6	4.8	0.0	0.0	0.0	66.7	0.0
	June	42.3	3.9	0.0	0.0	3.9	50.0	0.0
	July	37.5	6.3	0.0	0.0	6.3	50.0	0.0
	August	0.0	0.0	0.0	0.0	50.0	50.0	0.0
	Overall	34.3	4.5	0.0	0.0	6.0	55.2	0.0
2009	May	41.7	16.7	0.0	0.0	0.0	41.7	0.0
	June	14.3	42.9	0.0	0.0	14.3	28.5	0.0
	July	28.6	21.4	0.0	0.0	0.0	50.0	0.0
	August	28.6	21.4	7.1	0.0	7.1	35.7	0.0
	Overall	27.8	25.9	1.9	0.0	5.6	38.9	0.0
2010	May	14.3	28.6	0.0	0.0	4.8	52.4	0.0
	June	0.0	27.3	0.0	0.0	0.0	72.7	0.0
	July	14.3	28.6	0.0	0.0	14.3	42.9	0.0
	August	50.0	50.0	0.0	0.0	0.0	0.0	0.0
	Overall	12.2	29.3	0.0	0.0	4.9	53.7	0.0

Table 2. Angler primary target species (percentage) by month and overall for anglers fishing Pickerel Lake, South Dakota during the winters of 2006-2007, 2007-2008, 2008-2009, 2009-2010 and 2010-2011. ANY=anything, BLC= Black Crappie, BLG=Bluegill, WAE=Walleye, YEP=Yellow Perch.

		Percent (%) of Anglers					
Year	Month	ANY	BLC	BLG	NOP	WAE	YEP
2006-2007	December	27.8	38.9	0.0	0.0	27.8	5.6
	January	23.3	41.7	1.7	0.0	15.0	18.3
	February	26.5	17.7	0.0	2.9	23.5	29.4
	March	20.0	40.0	0.0	0.0	0.0	40.0
	Overall	24.4	34.7	0.8	0.8	17.3	22.1
2007-2008	December	56.4	5.1	0.0	0.0	12.8	25.6
	January	45.0	20.0	2.0	0.0	4.0	29.0
	February	50.0	16.7	0.0	3.7	14.8	14.8
	March	41.7	16.7	4.2	0.0	8.3	29.2
	Overall	47.9	16.1	1.4	0.9	8.8	24.9
2008-2009	December	31.6	57.9	0.0	0.0	5.3	5.3
	January	23.0	69.8	0.0	0.0	1.4	5.8
	February	22.0	72.5	0.0	0.0	0.0	5.5
	March	16.0	80.0	2.0	0.0	2.0	0.0
	Overall	22.1	71.6	0.3	0.0	1.3	4.7
2009-2010	December	3.5	86.2	0.0	0.0	0.0	10.3
	January	8.2	89.8	0.0	0.0	0.0	2.0
	February	25.0	75.0	0.0	0.0	0.0	0.0
	March	15.0	77.5	2.5	0.0	0.0	5.0
	Overall	11.6	83.3	0.7	0.0	0.0	4.4
2010-2011	December	15.4	76.9	0.0	0.0	3.9	3.9
	January	23.1	76.9	0.0	0.0	0.0	0.0
	February	0.0	90.0	0.0	0.0	0.0	10.0
	March	0.0	100.0	0.0	0.0	0.0	0.0
	Overall	15.2	80.3	0.0	0.0	1.5	3.0

Table 3. Angler demographics by month and overall including; the number of interviews, estimated angler hours, estimated angler days, estimated economic value (Eco value; $), estimated trip length (h), average party size, percent (% SD) of interviewed anglers that were South Dakota residents, and percent (% Boat) of angler hours attributed to angling from a boat at Pickerel Lake, South Dakota during the summers of 2007-2010. One standard error is provided in parentheses when calculated.

Year	Month	# interviews	Angler hours	Angler days	Eco value ($)	Trip length (hr)	Party size	% SD	% Boat or Shack
2007	May	14	7,222 (2,723)	2,143	107,151	3.37 (---)	2.22 (0.77)	40.0	83.4
	June	34	7,850 (1,743)	1,573	78,657	4.99 (0.37)	2.33 (1.42)	64.7	81.3
	July	29	10,534 (2,332)	3,313	165,629	3.18 (1.17)	2.29 (1.42)	82.8	83.1
	August	13	6,108 (1,324)	1,669	83,443	3.66 (1.10)	2.59 (0.58)	61.5	75.4
	Overall	90	31,713 (4,200)	8,368	418,377	3.79 (0.41)	2.36 (0.55)	64.6	81.2
2008	May	19	5,754 (1,989)	1,683	84,123	3.42 (0.98)	2.60 (0.72)	33.3	88.8
	June	27	7,133 (855)	2,068	103,378	3.45 (0.45)	2.66 (1.11)	76.9	87.4
	July	16	7,846 (1,073)	2,248	112,407	3.49 (---)	2.24 (0.50)	80.0	91.1
	August	4	3,552 (1,159)	4,554	227,692	0.78 (---)	1.10 (---)	100.0	68.1
	Overall	66	24,285 (2,680)	8,736	436,781	2.78 (0.27)	2.14 (0.35)	65.2	86.1
2009	May	12	10,866 (3,418)	3,002	150,083	3.62 (---)	2.23 (---)	75.0	87.0
	June	14	9,213 (1,697)	1,977	98,852	4.66 (---)	2.21 (0.05)	57.1	85.2
	July	14	11,877 (3,536)	3,117	155,866	3.81 (---)	2.68 (---)	53.9	85.6
	August	14	8,191 (1,742)	1,909	95,466	4.29 (---)	3.25 (0.13)	78.6	83.6
	Overall	54	40,148 (5,486)	9,768	488,419	4.11 (---)	2.60 (0.05)	66.0	85.5

Table 3. Continued.

Year	Month	# interviews	Angler hours	Angler days	Eco value ($)	Trip length (hr)	Party size	% SD	% Boat or Shack
2010	May	21	8,416 (4,341)	1,750	87,484	4.81 (---)	2.56 (0.08)	52.4	95.0
	June	11	8,974 (2,026)	2,439	121,929	3.68 (0.05)	2.57 (0.31)	72.7	90.1
	July	7	6,111 (1,551)	1,591	79,570	3.84 (---)	2.24 (---)	85.7	94.5
	August	2	4,120 (770)	1,174	58,690	3.51 (---)	2.00 (---)	50.0	94.5
	Overall	41	27,621 (5,093)	6,803	340,160	4.06 (0.01)	2.41 (0.23)	63.4	93.2

Table 4. Overall angler demographics including; the number of interviews, estimated angler hours, estimated angler days, estimated economic value (Eco value; $), estimated trip length (h), average party size, percent (% SD) of interviewed anglers that were South Dakota residents, and percent (% Boat) of angler hours attributed to angling from a boat at Pickerel Lake, South Dakota during the winters of 2006-2007, 2007-2008, 2008-2009, 2009-2010 and 2010-2011. One standard error is provided in parentheses when calculated.

Year	Month	# interviews	Angler hours	Angler days	Eco value ($)	Trip length (hr)	Party size	% SD	% Boat or Shack
2006-2007	December	18	1,735 (482)	732	36,603	2.37 (---)	2.04 (---)	83.3	44.2
	January	60	5,643 (791)	1,390	69,495	4.06 (0.82)	1.78 (0.92)	53.3	81.5
	February	34	2,567 (869)	577	28,843	4.45 (---)	1.89 (0.39)	58.8	87.5
	March	15	2,080 (778)	422	21,095	4.93 (---)	2.20 (---)	40.0	52.2
	Overall	127	12,024 (1,489)	3,052	152,589	3.94 (0.21)	1.98 (0.25)	57.5	72.4
2007-2008	December	39	1,507 (466)	369	18,423	4.09 (1.37)	1.98 (0.53)	87.2	71.9
	January	100	5,431 (1,939)	1,597	79,868	3.40 (1.23)	1.71 (0.83)	70.0	87.2
	February	54	4,456 (592)	1,173	58,632	3.80 (1.96)	1.52 (0.97)	77.8	52.1
	March	24	1,078 (350)	256	12,803	4.21 (0.33)	1.78 (0.63)	70.8	76.3
	Overall	217	12,472 (2,109)	3,223	161,137	3.87 (0.66)	1.75 (0.37)	75.1	71.9
2008-2009	December	19	1,259 (422)	357	17,833	3.53 (1.28)	1.57 (0.44)	73.7	98.7
	January	139	9,563 (2,438)	2,465	123,234	3.88 (1.43)	1.83 (0.84)	72.7	94.1
	February	92	9,035 (1,890)	2,596	129,813	3.48 (1.01)	1.99 (0.77)	68.1	87.7
	March	51	3,542 (1,193)	965	48,256	3.67 (1.05)	1.88 (0.92)	64.0	47.3
	Overall	301	23,399 (3,335)	6,428	321,415	3.64 (0.61)	1.81 (0.38)	69.9	84.8

Table 4. Continued.

Year	Month	# interviews	Angler hours	Angler days	Eco value ($)	Trip length (hr)	Party size	% SD	% Boat or Shack
2009-2010	December	29	2,156 (840)	696	34,774	3.10 (1.42)	1.91 (1.37)	89.7	62.0
	January	49	10,937 (1,383)	3,107	155,355	3.52 (1.76)	2.33 (1.25)	75.5	71.8
	February	20	4,180 (1,540)	903	45,140	4.63 (---)	2.49 (0.38)	75.0	55.0
	March	40	4,978 (1,645)	1,194	59,688	4.17 (0.92)	2.86 (1.16)	65.0	39.3
	Overall	138	22,251 (2,774)	5,795	289,727	3.84 (0.63)	2.40 (0.57)	75.4	60.4
2010-2011	December	26	2,333 (1,044)	528	26,391	4.42 (1.37)	2.34 (0.58)	96.2	92.1
	January	26	1,964 (957)	664	33,176	2.96 (---)	2.31 (---)	84.6	77.1
	February	10	1,377 (535)	426	21,316	3.23 (---)	1.70 (---)	90.0	71.1
	March	4	999 (617)	247	12,364	4.04 (---)	1.60 (---)	100.0	53.9
	Overall	66	6,673 (1,635)	1,818	90,913	3.67 (0.35)	2.00 (0.15)	90.9	77.6

Table 5. State residence (percentage) of anglers fishing Pickerel Lake, South Dakota during the summers of 2007-2010.

	Percent (%) of anglers			
State	2007	2008	2009	2010
South Dakota	64.6	65.2	66.0	63.4
Iowa	9.4	9.1	11.3	14.6
Minnesota	14.6	19.7	13.2	17.1
Nebraska	5.2	3.0	3.8	0.0
North Dakota	1.0	0.0	3.8	4.9
Wisconsin	0.0	0.0	1.9	0.0
Alabama	0.0	1.5	0.0	0.0
Kansas	1.0	0.0	0.0	0.0
Colorado	0.0	1.5	0.0	0.0
Missouri	3.1	0.0	0.0	0.0
Montana	1.0	0.0	0.0	0.0

Table 6. State residence (percentage) of anglers fishing Pickerel Lake, South Dakota during the winters of 2006-2007, 2007-2008, 2008-2009, 2009-2010 and 2010-2011.

	Percent (%) of anglers				
State	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011
South Dakota	57.5	75.1	69.9	75.4	90.9
Iowa	3.9	3.2	6.4	5.8	3.0
Minnesota	27.6	19.4	16.1	11.6	4.6
Nebraska	7.1	1.8	3.7	2.2	0.0
North Dakota	3.2	0.0	0.3	2.2	1.5
Wisconsin	0.8	0.0	3.0	2.2	0.0
Arizona	0.0	0.0	0.0	0.0	0.0
Wyoming	0.0	0.5	0.0	0.0	0.0
Indiana	0.0	0.0	0.3	0.0	0.0
Missouri	0.0	0.0	0.3	0.0	0.0
Montana	0.0	0.0	0.0	0.7	0.0

Table 7. Estimated monthly and total catch rate per hour fished (C/h) and harvest rate per hour fished (H/h) for Black Crappie (BLC), Bluegill (BLG), Northern Pike (NOP), Smallmouth Bass (SMB), Walleye (WAE) and Yellow Perch (YEP) at Pickerel Lake, South Dakota during the summers of 2007-2010. One standard error is provided in parentheses when calculated.

		BLC		BLG		NOP		SMB		WAE		YEP	
Year	Month	C/h	H/h	C/h	H/h	C/h	H/h	C/h	H/h	C/h	H/h	C/h	H/h
2007	May	0.04 (0.03)	0.02 (0.02)	0.00 (0.00)	0.00 (0.00)	0.02 (0.02)	0.00 (0.000	0.20 (0.27)	0.00 (0.00)	0.09 (0.05)	0.04 (0.01)	0.03 (0.03)	0.00 (0.00)
	June	0.05 (---)	0.04 (---)	0.01 (0.01)	0.01 (0.01)	0.14 (0.11)	0.06 (0.04)	0.66 (0.50)	0.03 (0.02)	0.49 (0.34)	0.29 (0.18)	0.25 (0.16)	0.11 (0.06)
	July	0.08 (0.11)	0.02 (0.06)	0.09 (0.04)	0.00 (0.00)	0.07 (0.05)	0.02 (0.01)	1.46 (2.72)	0.08 (0.16)	0.26 (0.15)	0.08 (0.08)	0.22 (0.10)	0.01 (0.01)
	August	0.36 (0.08)	0.00 (0.00)	0.31 (0.37)	0.27 (0.32)	0.18 (0.21)	0.02 (0.01)	2.19 (0.75)	0.00 (0.00)	0.16 (0.02)	0.01 (0.01)	0.65 (0.18)	0.01 (0.01)
	Overall	0.12 (0.05)	0.02 (0.02)	0.10 (0.07)	0.05 (0.06)	0.10 (0.04)	0.03 (0.01)	1.11 (0.87)	0.03 (0.04)	0.26 (0.09)	0.11 (0.05)	0.27 (0.06)	0.03 (0.01)
2008	May	0.11 (0.21)	0.10 (0.20)	0.00 (0.00)	0.00 (0.00)	0.10 (0.06)	0.04 (0.03)	0.50 (0.42)	0.01 (0.01)	0.16 (0.07)	0.01 (<0.01)	0.00 (0.00)	0.00 (0.00)
	June	0.01 (0.01)	0.00 (0.00)	<0.01 (<0.01)	<0.01 (<0.01)	0.15 (0.10)	0.01 (0.01)	0.40 (0.18)	0.03 (0.02)	0.41 (0.19)	0.04 (0.03)	0.05 (0.04)	0.01 (0.01)
	July	0.29 (0.26)	0.17 (0.19)	0.01 (0.01)	0.00 (0.00)	0.13 (0.04)	0.01 (0.01)	0.23 (0.04)	0.00 (0.00)	0.37 (0.13)	0.06 (0.04)	0.08 (0.03)	0.00 (0.00)
	August	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.47 (---)	0.00 (---)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
	Overall	0.12 (0.10)	0.08 (0.08)	<0.01 (<0.01)	<0.01 (<0.01)	0.11 (0.03)	0.01 (0.01)	0.38 (0.10)	0.01 (0.01)	0.28 (0.07)	0.03 (0.02)	0.04 (0.01)	<0.01 (<0.01)
2009	May	0.09 (0.08)	0.09 (0.08)	0.00 (0.00)	0.00 (0.00)	0.05 (0.04)	0.00 (0.00)	0.15 (---)	0.00 (---)	0.39 (0.25)	0.13 (0.10)	0.00 (0.00)	0.00 (0.00)
	June	0.47 (0.38)	0.23 (0.11)	0.01 (0.01)	0.01 (0.01)	0.06 (0.02)	0.02 (0.01)	0.09 (0.06)	0.01 (0.01)	0.30 (0.22)	0.02 (0.01)	0.00 (0.00)	0.00 (0.00)
	July	0.10 (0.05)	0.07 (0.05)	0.00 (0.00)	0.00 (0.00)	0.02 (0.02)	0.00 (0.00)	0.04 (0.02)	0.00 (0.00)	0.18 (0.09)	0.01 (0.01)	0.00 (0.00)	0.00 (0.00)
	August	0.51 (0.54)	0.30 (0.44)	0.06 (---)	0.06 (---)	0.02 (0.02)	0.00 (0.00)	0.02 (0.02)	<0.01 (<0.01)	0.07 (0.06)	0.00 (0.00)	0.09 (0.02)	0.01 (<0.01)
	Overall	0.26 (0.13)	0.16 (0.08)	0.02 (<0.01)	0.02 (<0.01)	0.04 (0.01)	0.01 (<0.01)	0.08 (0.02)	<0.01 (<0.01)	0.24 (0.09)	0.04 (0.02)	0.02 (<0.01)	<0.01 (<0.01)

Table 7. Continued.

		BLC		BLG		NOP		SMB		WAE		YEP	
Year	Month	C/h	H/h	C/h	H/h	C/h	H/h	C/h	H/h	C/h	H/h	C/h	H/h
2010	May	0.47 (0.30)	0.44 (0.28)	0.00 (0.00)	0.00 (0.00)	0.11 (0.08)	0.01 (0.01)	0.01 (<0.01)	0.00 (0.00)	<0.01 (<0.01)	<0.01 (<0.01)	0.00 (0.00)	0.00 (0.00)
	June	0.25 (0.14)	0.19 (0.12)	0.02 (0.02)	0.02 (0.02)	0.00 (0.00)	0.00 (0.00)	0.10 (0.17)	0.00 (0.00)	0.39 (0.30)	0.05 (0.04)	0.01 (0.01)	0.01 (0.01)
	July	0.53 (0.55)	0.34 (0.47)	0.00 (0.00)	0.00 (0.00)	0.13 (0.06)	0.01 (0.01)	0.16 (0.11)	0.02 (0.02)	0.39 (0.21)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
	August	0.68 (0.45)	0.68 (0.45)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.03 (0.02)	0.00 (0.00)	0.07 (0.05)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
	Overall	0.44 (0.16)	0.37 (0.14)	0.01 (0.01)	0.01 (0.01)	0.06 (0.02)	0.01 (<0.01)	0.07 (0.06)	0.01 (0.01)	0.23 (0.10)	0.02 (0.02)	<0.01 (<0.01)	<0.01 (<0.01)

Table 8. Estimated monthly and overall catch rate per hour fished (C/h) and harvest rate per hour fished (H/h) for Black Crappie (BLC), Bluegill (BLG), Northern Pike (NOP), Smallmouth Bass (SMB), Walleye (WAE) and Yellow Perch (YEP) at Pickerel Lake, South Dakota during the winters of 2006-2007, 2007-2008, 2008-2009, 2009-2010 and 2010-2011. One standard error is provided in parentheses when calculated.

		BLC		BLG		NOP		SMB		WAE		YEP	
Year	Month	C/h	H/h	C/h	H/h	C/h	H/h	C/h	H/h	C/h	H/h	C/h	H/h
2006-2007	December	0.80 (0.34)	0.57 (0.29)	0.58 (0.69)	0.08 (0.07)	0.05 (0.06)	0.02 (0.05)	0.00 (0.00)	0.00 (0.00)	0.13 (0.16)	0.12 (0.09)	0.47 (---)	0.23 (---)
	January	0.36 (0.22)	0.33 (0.22)	0.12 (0.04)	0.06 (---)	0.02 (0.01)	<0.01 (<0.01)	0.01 (<0.01)	0.00 (0.00)	0.06 (0.02)	0.03 (0.01)	0.65 (0.30)	0.26 (0.14)
	February	0.36 (0.41)	0.29 (0.37)	0.21 (0.14)	0.09 (0.04)	0.02 (0.02)	0.01 (0.01)	0.03 (0.03)	0.00 (0.00)	0.07 (0.11)	0.06 (0.07)	1.24 (0.89)	0.32 (0.32)
	March	0.61 (---)	0.61 (---)	0.04 (0.06)	0.00 (0.00)	0.03 (0.04)	0.01 (0.01)	0.04 (0.03)	0.00 (0.00)	0.01 (0.01)	0.00 (0.00)	0.92 (---)	0.47 (0.04)
	Overall	0.47 (0.13)	0.41 (0.13)	0.19 (0.09)	0.06 (0.01)	0.03 (0.01)	0.01 (0.01)	0.02 (0.01)	0.00 (0.00)	0.06 (0.03)	0.04 (0.02)	0.80 (0.21)	0.31 (0.09)
2007-2008	December	0.45 (0.21)	0.30 (0.18)	0.03 (0.02)	0.03 (0.02)	0.03 (0.02)	0.02 (0.01)	0.01 (---)	0.00 (0.00)	0.31 (0.23)	0.09 (0.06)	1.46 (0.95)	0.82 (0.41)
	January	0.97 (1.17)	0.45 (0.54)	0.14 (0.25)	0.09 (0.10)	0.01 (0.01)	0.01 (0.01)	<0.01 (---)	<0.01 (---)	0.12 (0.11)	0.02 (0.02)	0.70 (0.59)	0.33 (0.26)
	February	0.53 (0.43)	0.21 (0.19)	0.07 (0.05)	0.03 (0.03)	0.02 (0.01)	0.02 (0.01)	0.07 (0.02)	<0.01 (<0.01)	0.06 (0.03)	0.01 (0.01)	0.68 (0.54)	0.31 (0.17)
	March	0.68 (0.54)	0.54 (0.55)	0.01 (<0.01)	0.01 (<0.01)	0.03 (0.01)	0.01 (0.01)	0.02 (0.02)	0.00 (0.00)	0.22 (---)	0.04 (0.04)	1.30 (1.05)	0.88 (0.71)
	Overall	0.72 (0.51)	0.36 (0.24)	0.09 (0.11)	0.05 (0.04)	0.02 (0.01)	0.01 (<0.01)	0.03 (0.01)	<0.01 (<0.01)	0.13 (0.06)	0.03 (0.01)	0.83 (0.37)	0.43 (0.16)

Table 8. Continued.

		BLC		BLG		NOP		SMB		WAE		YEP	
Year	Month	C/h	H/h	C/h	H/h	C/h	H/h	C/h	H/h	C/h	H/h	C/h	H/h
2008-2009	December	1.84 (1.19)	0.85 (0.59)	0.51 (0.33)	0.19 (0.12)	0.03 (0.03)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.11 (0.08)	0.00 (0.00)	0.12 (0.11)	0.04 (0.03)
	January	1.39 (1.07)	1.19 (0.92)	0.04 (0.02)	0.03 (0.02)	0.01 (0.01)	<0.01 (<0.01)	<0.01 (---)	0.00 (---)	0.04 (0.02)	0.00 (0.00)	0.24 (0.24)	0.13 (0.09)
	February	1.94 (1.14)	1.63 (0.99)	0.05 (0.05)	0.05 (0.05)	0.01 (0.01)	<0.01 (<0.01)	<0.01 (---)	0.00 (---)	0.03 (0.01)	0.01 (<0.01)	0.50 (0.21)	0.29 (0.14)
	March	1.38 (1.56)	1.26 (1.52)	0.21 (0.22)	0.18 (0.20)	0.04 (0.03)	0.01 (0.01)	0.01 (---)	0.00 (---)	0.04 (0.02)	0.00 (0.00)	0.54 (0.09)	0.27 (0.34)
	Overall	1.63 (0.67)	1.35 (1.58)	0.09 (0.04)	0.07 (0.03)	0.02 (0.01)	<0.01 (<0.01)	<0.01 (---)	0.00 (---)	0.04 (0.01)	<0.01 (<0.01)	0.38 (0.14)	0.21 (0.08)
2009-2010	December	3.85 (6.01)	2.96 (3.97)	0.08 (0.11)	0.08 (0.11)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.14 (0.22)	0.01 (0.01)	0.28 (0.27)	0.17 (---)
	January	1.88 (0.80)	1.42 (0.68)	0.03 (0.02)	0.03 (0.02)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.07 (0.04)	0.00 (0.00)	0.15 (0.05)	0.11 (0.06)
	February	1.53 (0.85)	1.41 (0.78)	0.04 (0.03)	0.03 (0.03)	0.01 (0.01)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.03 (0.04)	0.00 (0.00)	0.08 (0.06)	0.03 (0.03)
	March	2.55 (1.73)	2.27 (1.57)	0.03 (0.01)	0.03 (0.01)	0.01 (0.01)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.06 (0.06)	0.00 (0.00)	1.85 (0.77)	1.35 (0.52)
	Overall	2.15 (0.74)	1.76 (0.59)	0.04 (0.01)	0.04 (0.01)	<0.01 (<0.01)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.07 (0.03)	<0.01 (<0.01)	0.53 (0.19)	0.28 (0.12)
2010-2011	December	2.77 (1.95)	2.44 (1.78)	0.27 (0.20)	0.17 (0.16)	0.02 (0.02)	0.01 (0.01)	0.01 (0.01)	0.00 (0.00)	0.03 (0.04)	0.01 (0.01)	0.29 (---)	0.04 (---)
	January	4.15 (2.65)	3.97 (2.56)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.01 (0.01)	0.00 (0.00)	<0.01 (0.01)	0.00 (0.00)	0.36 (0.48)	0.05 (0.06)
	February	0.88 (0.31)	0.88 (0.31)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.23 (0.20)	0.10 (0.04)
	March	9.40 (---)	9.01 (---)	0.06 (---)	0.02 (---)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.25 (---)	0.00 (---)
	Overall	3.78 (1.20)	3.55 (1.14)	0.10 (0.04)	0.06 (0.03)	0.01 (0.01)	<0.01 (<0.01)	<0.01 (<0.01)	0.00 (0.00)	0.01 (0.01)	<0.01 (<0.01)	0.29 (0.13)	0.05 (0.01)

Table 9. Estimated monthly and overall catch and harvest of Black Crappie (BLC), Bluegill (BLG), Northern Pike (NOP), Smallmouth Bass (SMB), Walleye (WAE), Yellow Perch (YEP) and total at Pickerel Lake, South Dakota during summers of 2007-2010. One standard error is provided in parentheses when calculated.

		BLC		BLG		NOP		SMB		WAE		YEP		Total	
Year	Month	C	H	C	H	C	H	C	H	C	H	C	H	C	H
2007	May	262 (160)	131 (91)	0 (0)	0 (0)	170 (163)	0 (0)	1,420 (763)	0 (0)	632 (233)	263 (87)	224 (197)	0 (0)	3,983 (1,883)	394 (125)
	June	384 (218)	319 (203)	94 (74)	65 (66)	1,061 (354)	466 (182)	5,151 (2,788)	194 (142)	3,879 (1,395)	2,243 (931)	1,980 (583)	869 (377)	13,971 (4,628)	5,247 (1,403)
	July	861 (464)	188 (233)	952 (443)	0 (0)	751 (577)	209 (103)	15,344 (17,741)	825 (1,109)	2,722 (709)	837 (281)	2,341 (804)	84 (56)	25,499 (---)	2,308 (246)
	August	2,223 (0)	0 (0)	1,889 (2,222)	1,619 (1,904)	1,076 (482)	119 (35)	13,379 (1,119)	0 (0)	966 (236)	79 (24)	3,959 (790)	54 (64)	34,073 (4,158)	1,871 (1,969)
	Overall	3,729 (538)	638 (322)	2,935 (2,267)	1,684 (1,906)	3,057 (847)	793 (212)	35,293 (10,010)	1,018 (1,118)	8,198 (1,600)	3,422 (977)	8,503 (1,284)	1,007 (387)	77,526 (6,501)	9,821 (2,433)
2008	May	625 (497)	550 (503)	0 (0)	0 (0)	559 (194)	211 (101)	2,892 (1,190)	37 (43)	924 (492)	37 (26)	0 (0)	0 (0)	5,420 (---)	835 (766)
	June	70 (48)	0 (0)	23 (27)	23 (27)	1,080 (595)	46 (54)	2,885 (1,259)	182 (111)	2,908 (904)	275 (170)	347 (280)	68 (81)	7,703 (1,585)	639 (273)
	July	2,244 (1,980)	1,332 (1,528)	71 (50)	0 (0)	1,049 (188)	71 (85)	1,781 (718)	0 (0)	2,930 (642)	501 (315)	641 (180)	0 (0)	9,013 (2,581)	1,904 (1,920)
	August	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1,655 (---)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1,655 (---)	0 (0)
	Overall	2,939 (2,042)	1,883 (1,608)	94 (57)	23 (27)	2,688 (654)	327 (142)	9,213 (1,876)	219 (119)	6,761 (1,213)	813 (359)	988 (333)	68 (81)	23,792 (3,029)	3,379 (2,085)
2009	May	947 (831)	947 (831)	0 (0)	0 (0)	490 (411)	0 (0)	1,582 (---)	0 (---)	4,255 (2,207)	1,437 (888)	0 (0)	0 (0)	7,531 (2,601)	2,384 (1,692)
	June	4,304 (2,496)	2,147 (1,319)	67 (61)	67 (61)	591 (158)	200 (125)	863 (520)	67 (73)	2,725 (1,977)	133 (62)	0 (0)	0 (0)	9,047 (4,430)	2,814 (1,441)
	July	1,126 (424)	791 (546)	0 (0)	0 (0)	279 (178)	0 (0)	439 (162)	0 (0)	2,120 (896)	56 (53)	0 (0)	0 (0)	4,187 (1,338)	847 (599)
	August	4,152 (2,330)	2,425 (1,867)	527 (---)	527 (---)	118 (125)	0 (0)	191 (125)	36 (0)	576 (458)	0 (0)	731 (133)	59 (0)	6,512 (2,759)	3,047 (1,858)
	Overall	10,527 (3,540)	6,309 (2,493)	594 (61)	594 (61)	1,479 (491)	200 (125)	3,075 (558)	103 (73)	9,675 (3,129)	1,626 (891)	733 (133)	59 (0)	27,277 (5,983)	9,091 (2,958)

Table 9. Continued.

		BLC		BLG		NOP		SMB		WAE		YEP		Total	
Year	Month	C	H	C	H	C	H	C	H	C	H	C	H	C	H
2010	May	3,991 (1,500)	3,729 (1,211)	0 (0)	0 (0)	921 (185)	97 (0)	58 (19)	0 (0)	29 (23)	29 (23)	0 (0)	0 (0)	5,126 (1,476)	3,952 (1,199)
	June	2,259 (1,862)	1,726 (1,772)	185 (124)	185 (124)	0 (0)	0 (0)	863 (1,044)	0 (0)	3,497 (2,043)	426 (443)	79 (57)	79 (57)	7,588 (3,238)	3,122 (1,544)
	July	3,227 (1,959)	2,061 (1,631)	0 (0)	0 (0)	810 (293)	85 (62)	980 (639)	131 (144)	2,395 (809)	0 (0)	0 (0)	0 (0)	7,413 (2,383)	2,278 (1,597)
	August	2,793 (1,757)	2,793 (1,757)	0 (0)	0 (0)	0 (0)	0 (0)	140 (88)	0 (0)	279 (176)	0 (0)	0 (0)	0 (0)	3,212 (2,020)	2,793 (1,757)
	Overall	12,270 (3,555)	10,309 (3,218)	185 (124)	185 (124)	1,731 (346)	182 (62)	2,041 (1,228)	131 (144)	6,201 (2,204)	455 (443)	79 (57)	79 (57)	23,339 (4,736)	12,144 (3,076)

Table 10. Estimated monthly and overall catch and harvest of Black Crappie (BLC), Bluegill (BLG), Northern Pike (NOP), Smallmouth Bass (SMB), Walleye (WAE), Yellow Perch (YEP) and total at Horseshoe Lake, South Dakota during the winters of 2006-2007, 2007-2008, 2008-2009, 2009-2010 and 2010-2011. One standard error is provided in parentheses when calculated.

		BLC		BLG		NOP		SMB		WAE		YEP		Total	
Year	Month	C	H	C	H	C	H	C	H	C	H	C	H	C	H
2006-2007	December	1,394 (857)	986 (755)	1,003 (947)	140 (58)	84 (70)	42 (55)	0 (0)	0 (0)	232 (137)	200 (127)	820 (482)	396 (324)	3,531 (1,346)	1,764 (900)
	January	2,016 (1,394)	1,884 (1,395)	698 (409)	358 (163)	105 (49)	13 (8)	26 (17)	0 (0)	334 (81)	190 (58)	3,661 (1,269)	1,481 (534)	6,866 (1,242)	3,938 (1,093)
	February	917 (407)	739 (387)	539 (244)	232 (152)	53 (29)	15 (14)	76 (61)	0 (0)	182 (119)	142 (80)	3,171 (945)	820 (492)	4,938 (1,478)	1,949 (1,099)
	March	1,268 (1,270)	1,268 (1,270)	92 (126)	0 (0)	60 (76)	20 (25)	76 (55)	0 (0)	20 (25)	0 (0)	1,919 (373)	971 (364)	3,433 (1,841)	2,259 (1,632)
	Overall	5,595 (2,111)	4,878 (2,068)	2,332 (1,068)	730 (231)	301 (118)	90 (62)	178 (84)	0 (0)	768 (201)	531 (161)	9,570 (1,695)	3,668 (875)	18,769 (2,988)	9,910 (2,424)
2007-2008	December	671 (364)	452 (327)	45 (27)	45 (27)	39 (19)	35 (16)	16 (14)	0 (0)	464 (191)	135 (57)	2,204 (913)	1,232 (430)	3,682 (1,112)	2,125 (547)
	January	5,272 (4,886)	2,462 (2,254)	757 (1,262)	505 (495)	52 (32)	33 (27)	6 (---)	6 (---)	655 (299)	120 (53)	3,779 (2,116)	1,767 (854)	10,554 (6,041)	4,926 (2,780)
	February	2,361 (1,635)	943 (780)	296 (226)	120 (146)	96 (25)	96 (25)	289 (78)	4 (0)	282 (86)	43 (30)	3,021 (2,003)	1,374 (552)	6,446 (5,777)	2,678 (2,697)
	March	728 (586)	583 (558)	5 (4)	5 (4)	27 (5)	11 (8)	25 (18)	0 (0)	233 (116)	41 (8)	1,402 (1,037)	949 (699)	2,426 (1,609)	1,588 (1,244)
	Overall	9,032 (5,198)	4,439 (2,471)	1,103 (1,282)	674 (517)	214 (45)	175 (41)	336 (81)	10 (0)	1,634 (383)	334 (84)	10,407 (3,226)	5,321 (1,360)	23,108 (8,584)	11,317 (4,105)
2008-2009	December	2,317 (779)	1,069 (374)	635 (358)	236 (134)	35 (30)	0 (0)	0 (0)	0 (0)	135 (88)	0 (0)	152 (71)	50 (26)	3,273 (989)	1,355 (383)
	January	13,300 (8,364)	11,369 (7,156)	349 (164)	300 (144)	121 (97)	39 (34)	9 (---)	0 (---)	417 (142)	0 (0)	2,285 (2,021)	1,194 (764)	16,480 (10,285)	12,901 (7,931)
	February	17,504 (8,046)	14,700 (7,108)	460 (441)	439 (440)	55 (47)	21 (23)	21 (---)	0 (---)	231 (89)	42 (31)	4,558 (1,951)	2,639 (1,243)	22,828 (10,107)	17,841 (8,405)
	March	4,896 (3,637)	4,466 (3,620)	748 (377)	621 (301)	153 (79)	28 (26)	20 (---)	0 (---)	134 (71)	0 (0)	1,909 (1,053)	947 (915)	7,859 (5,312)	6,071 (4,932)
	Overall	38,017 (12,187)	31,603 (10,723)	2,191 (701)	1,605 (569)	364 (137)	88 (49)	49 (---)	0 (---)	917 (202)	42 (31)	8,903 (3,001)	4,830 (1,722)	50,441 (15,399)	38,168 (12,570)

Table 10. Continued.

		BLC		BLG		NOP		SMB		WAE		YEP		Total	
Year	Month	C	H	C	H	C	H	C	H	C	H	C	H	C	H
2009-2010	December	8,296 (6,101)	6,370 (4,077)	169 (106)	169 (106)	0 (0)	0 (0)	0 (0)	0 (0)	304 (126)	23 (21)	603 (42)	359 (---)	9,372 (7,029)	6,721 (4,334)
	January	20,533 (8,070)	15,561 (6,140)	323 (170)	323 (170)	0 (0)	0 (0)	0 (0)	0 (0)	752 (441)	0 (0)	1,615 (695)	1,208 (782)	23,297 (8,933)	17,168 (6,862)
	February	6,376 (2,848)	5,876 (2,650)	151 (82)	131 (72)	22 (35)	0 (0)	0 (0)	0 (0)	131 (77)	0 (0)	343 (229)	130 (112)	7,023 (3,175)	6,136 (2,793)
	March	12,713 (5,469)	11,275 (4,920)	152 (69)	152 (69)	49 (33)	0 (0)	0 (0)	0 (0)	313 (255)	0 (0)	9,183 (4,255)	6,715 (2,763)	22,411 (8,704)	18,143 (6,767)
	Overall	47,918 (11,848)	39,082 (9,249)	796 (227)	775 (224)	71 (48)	0 (0)	0 (0)	0 (0)	1,499 (530)	23 (21)	11,744 (4,317)	8,412 (2,874)	62,103 (14,664)	48,368 (10,930)
2010-2011	December	6,469 (1,590)	5,696 (1,309)	623 (121)	398 (63)	42 (36)	17 (18)	15 (19)	0 (0)	59 (36)	17 (17)	676 (386)	103 (70)	7,909 (1,863)	6,231 (1,358)
	January	8,142 (1,132)	7,790 (1,132)	0 (0)	0 (0)	0 (0)	0 (0)	13 (14)	0 (0)	9 (11)	0 (0)	709 (426)	103 (50)	8,873 (1,481)	7,893 (1,162)
	February	1,204 (321)	1,204 (321)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	309 (188)	133 (0)	1,514 (298)	1,337 (321)
	March	9,388 (---)	8,996 (---)	63 (---)	21 (---)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	251 (---)	0 (0)	9,702 (---)	9,017 (---)
	Overall	25,203 (1,978)	23,686 (1,760)	686 (121)	419 (63)	42 (36)	17 (18)	28 (24)	0 (0)	67 (38)	17 (17)	1,945 (604)	338 (86)	27,997 (2,398)	24,477 (1,816)

Table 11. Pickerel Lake, South Dakota angler responses (percentage of total) during the summers of 2007-2010 to the question: "Considering all factors, how satisfied are you with your fishing trip today?" N is the number of responses. During the summers of 2007 and 2008 (*) moderately satisfied and moderately dissatisfied were not options for angler response.

	Percent (%) of anglers			
Response	2007* N=93	2008* N=67	2009 N=26	2010 N=41
Very Satisfied	45.2	38.8	23.1	29.3
Moderately Satisfied	—	—	26.9	31.7
Slightly Satisfied	19.4	23.9	7.7	12.2
Neutral	20.4	23.9	30.8	17.1
Slightly Dissatisfied	12.9	10.5	0.0	2.4
Moderately Dissatisfied	—	—	11.5	7.3
Very Dissatisfied	2.2	3.0	0.0	0.0

Table 12. Pickerel Lake, South Dakota angler responses (percentage of total) during the winters of 2006-2007, 2009-2010 and 2010-2011 to the question: "Considering all factors, how satisfied are you with your fishing trip today?" N is the number of responses. During the winter of 2006-2007 (*) moderately satisfied and moderately dissatisfied were not options for angler response.

	Percent (%) of anglers		
Response	2006-2007* N=96	2009-2010 N=128	2010-2011 N=63
Very Satisfied	44.8	48.4	39.7
Moderately Satisfied	—	26.6	6.4
Slightly Satisfied	20.8	6.3	9.5
Neutral	14.6	8.6	14.3
Slightly Dissatisfied	6.3	6.3	14.3
Moderately Dissatisfied	—	2.3	12.7
Very Dissatisfied	13.5	1.6	3.2

Table 13. Pickerel Lake, South Dakota angler response (percentage of total) during the summers of 2007, 2008 and 2010 to the question: "What is the most important factor to you in defining a successful fishing trip?" N is the number of responses.

	Percent (%) of anglers		
	2007 N=93	2008 N=67	2010 N=41
Relaxation	21.5	13.4	46.3
Harvesting Fish	19.4	19.4	0.0
Participate	12.9	7.5	9.8
Catching Fish	38.7	52.2	29.3
Being with Friends	5.4	3.0	12.2
Other	2.2	4.5	2.4

Table 14. Pickerel Lake, South Dakota angler response (percentage of total) during the winters of 2006-2007 and 2010-2011 to the question: "What is the most important factor to you in defining a successful fishing trip?" N is the number of responses.

	Percent (%) of anglers	
Response	2006-2007 N=96	2010-2011 N=62
Relaxation	16.7	6.5
Harvesting Fish	6.3	14.5
Participate	31.3	25.8
Catching Fish	37.5	46.8
Being with Friends	1.0	0.0
Other	7.3	6.5

Table 15. Pickerel Lake, South Dakota angler response (percentage of total) during the summer of 2009 and winter of 2009-2010 to the question: "Are you in favor of the reduced panfish limits in northeast South Dakota?" N is the number of responses.

	Percent (%) of anglers	
Response	2009 N=128	2009-2010 N=26
Yes	69.2	86.7
No Opinion	26.9	3.9
No	3.9	9.4

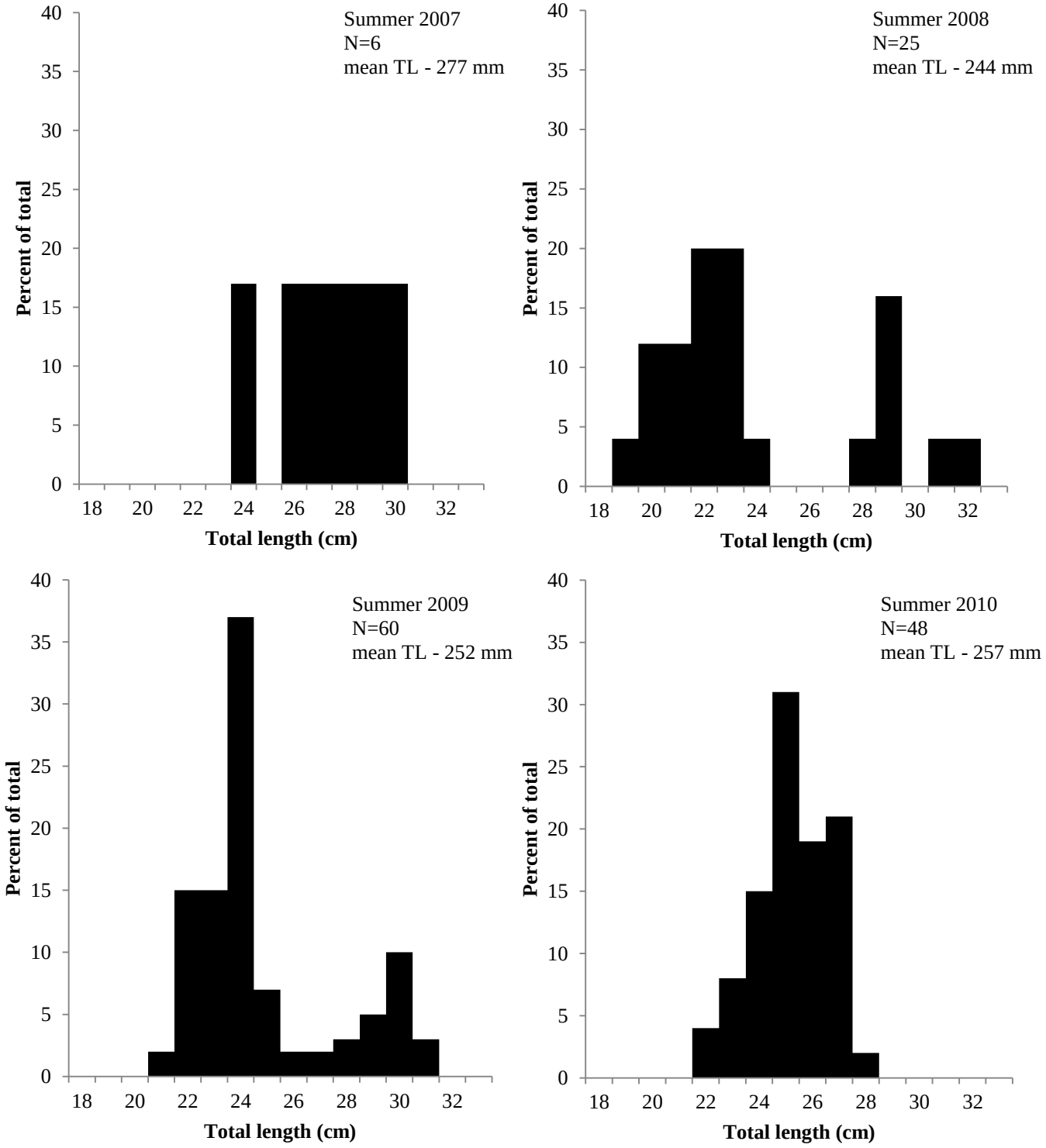

Figure 1. Length frequency histogram of Black Crappie harvested by anglers fishing Pickerel Lake during the summers of 2007-2010. N is the total number of fish measured and mean TL is the mean total length (mm) of harvested Black Crappie.

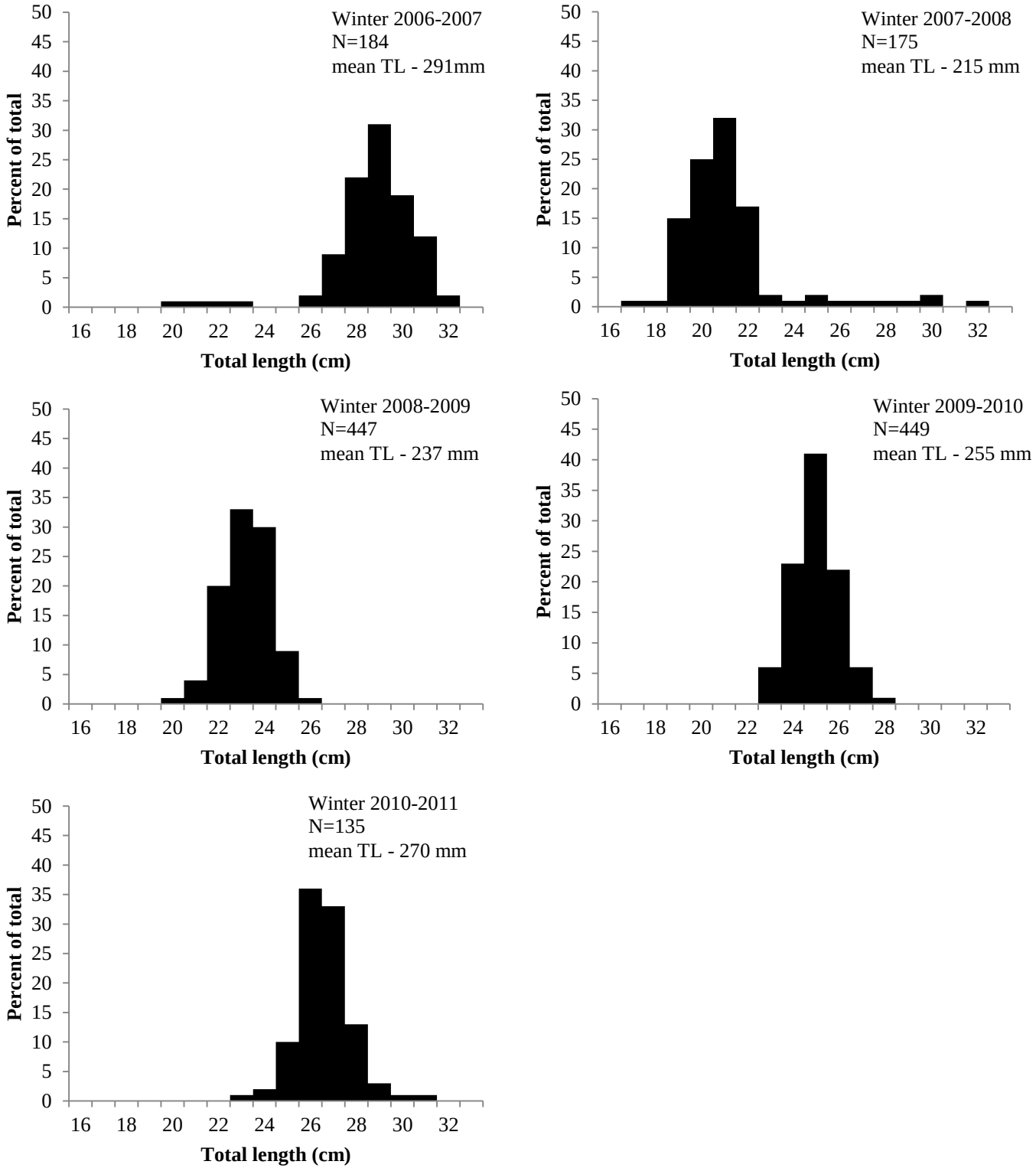

Figure 2. Length frequency histogram of Black Crappie harvested by anglers fishing Pickerel Lake during the winters of 2006-2007, 2007-2008, 2008-2009, 2009-2010 and 2010-2011. N is the total number of fish measured and mean TL is the mean total length (mm) of harvested Black Crappie.

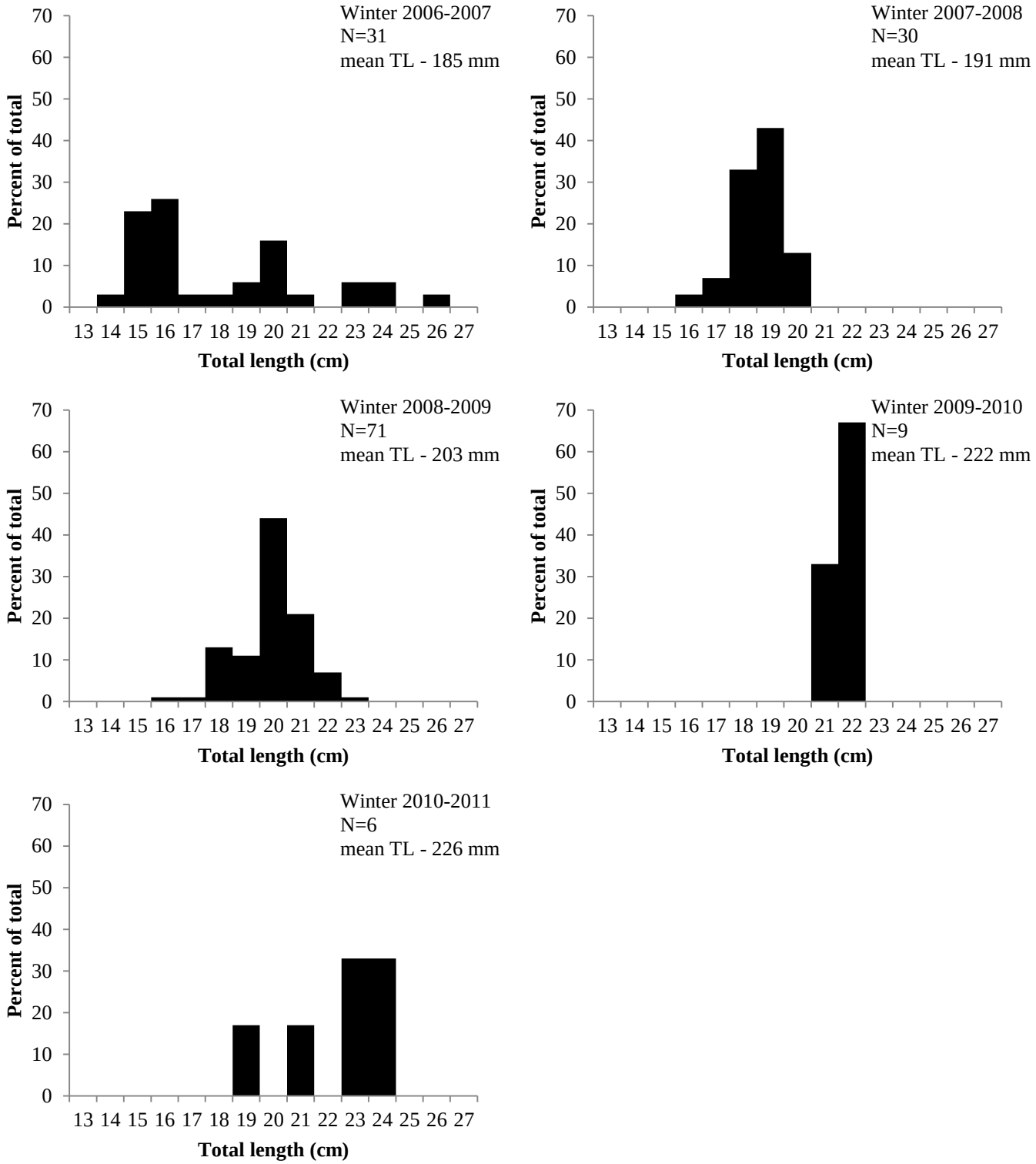

Figure 3. Length frequency histogram of Bluegill harvested by anglers fishing Pickerel Lake during the winters of 2006-2007, 2007-2008, 2008-2009, 2009-2010 and 2010-2011. N is the total number of fish measured and mean TL is the mean total length (mm) of harvested Bluegill.

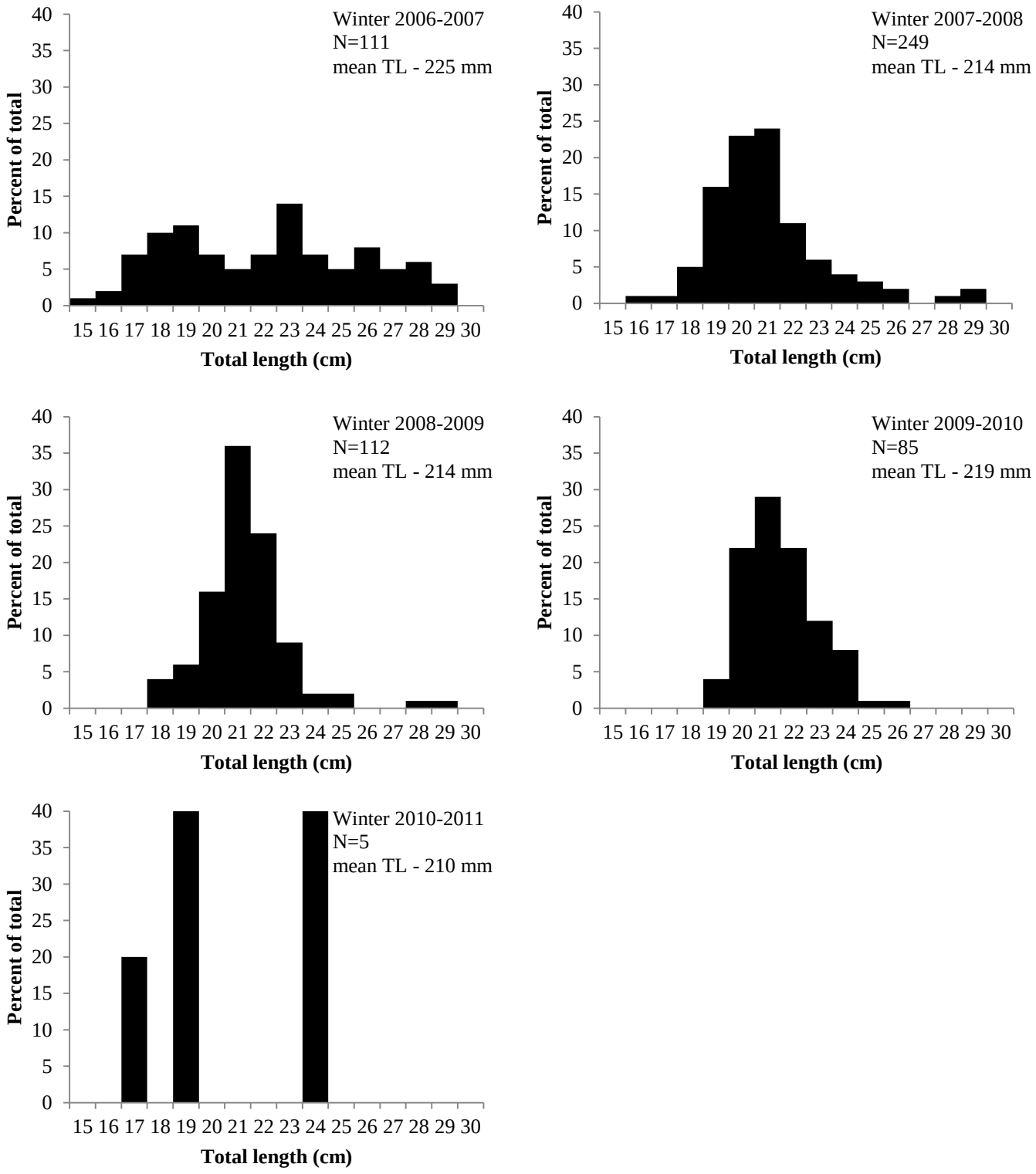

Figure 4. Length frequency histogram of Yellow Perch harvested by anglers fishing Pickerel Lake during the winters of 2006-2007, 2007-2008, 2008-2009, 2009-2010 and 2010-2011. N is the total number of fish measured and mean TL is the mean total length (mm) of harvested Yellow Perch.

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